Remarks

The present communication, filed in response to the Final Office Action mailed June 14, 2007, places all of the claims in condition for allowance. A notice of allowance should now issue.

Response After Final

The present remarks and amendments are appropriate to consider and enter after final. Applicant did not earlier make the amendments because the need to make the amendments are in connection with the final action.

Regarding the amendments to claim 2, they are in response to the final action which indicates that Applicants thickness limitations are a mere optimization. Claim 2 as amended merely incorporates limitations from Claim 10. Thus, no new issues are raised.

The amendment makes it clear that the thickness in connection with the defined layers is not a mere optimization based on known parameters. Accordingly, the thickness limitation distinguishes over the prior art. Applicant when it filed its previous response believed that it had clarified the distinguishing feature of the thickness limitation. The final action, however, makes it clear that Applicant needs to further clarify the importance of the thickness feature.

Claim Rejections 35 USC Section 103

The present Office Action rejects all of the claims as being obvious. Claims 2, 4, 6, 8, 10 and 12 are rejected as being unpatentable over Yoshimura 6,291,094 in view of Suzuki US 2003/0044540. Claim 14 is rejected in view of these references and in further view of Kunimoto JP 2000-182640. Applicant respectfully disagrees. The allowability of these claims can be best understood with respect to a discussion concerning the allowability of claim 2.

Claim 2 in the context of a specifically defined joining layer and conductive contact layer recites that the contact layer has a bandgap of .6eV or less and a thickness of .0005 μm or greater and less than .01μm. None of the references indicate that the thickness would result from optimizing corrosion resistance or cost savings.

The case of In re Antonie 195 U.S.P.Q. 6,8 (C.C.P.A. 1977), exemplifies application of the optimization rule. In Antonie, Applicant claimed a waste water treatment device. The Applicant claimed a ratio of tank volume to contact area of 12 gallons/sq.ft. The Examiner rejected the ratio as a mere optimization relying on In re Aller. The C.C.P.A. acknowledged that the prior art taught efficiency of treatment can be increased by increasing the area of the contact. The C.C.P.A., however, noted that the disclosure failed to demonstrate that the prior art recognized that the particular claimed ratio affected the result. The C.C.P.A. specifically held that an Examiner must establish, prior to relying on the mere optimization rule, that the prior art establishes that the importance of the claimed ratio is well known.

The Court, in In Re Rijckaert 9 f3d 1531 (Fed. Cir. 1993), also outlines the facts one must establish prior to applying the mere optimization rule. Rijckaert concerned an application directed towards an apparatus for recording and reproducing an electric signal on a magnetic record carrier. The Court completely rejected the optimization argument noting that the prior reference failed to show the importance of the claimed ratio was in fact, well known. Additionally, the reference failed to show the means to achieve the optimal condition. The mere fact that a certain thing may result from a given set of circumstances is not sufficient.

In the present case the Action states the need to provide good corrosion resistance while maintaining low overall cost would guide one to Applicant's thickness. Applicant disagrees. Suzuki only discloses that one should use a nickel skin membrane 12 formed on a

metallic substrate layer 11. Applied over layer 12 is an anti-corrosive non-metallic layer 13 which may be in the form of a carbon layer or a conductive ceramic layer of TiN or TiC. Suzuki, however, fails to disclose that its conductive layer 13 has a thickness of .0005 μm or greater and less than .01 μm. The object of Suzuki et al is to fill up fine pores in the non-metallic surface layer formed on the metallic substrate layer at a low cost. So as to realize this object, specific combinations of the surface metal provided on the metallic substrate layer and the anticorrosive metal are proposed. In the first preferred embodiment, a non-electrolytic plating of the anti-corrosive metal (Au) is different in ionization property from the surface metal (Ni). In the second preferred embodiment, the non-electrolytic plating of the anti-corrosive metal (Au) catalyzes with the surface metal (Au). According to this structure, Au is precipitated in the fine pores of the non-metallic layer to fill up the pores. In Suzuki, indeed, the thickness of the layer is 30 μm when made of carbon. See paragraphs 20 and 25 of Suzuki.

There is nothing in Suzuki which discloses, teaches or suggests parameters which indicate one optimizing the need for good corrosion resistance and cost savings would arrive at Applicant's particular thickness. Yoshimura also fails to disclose, teach or suggest any parameter to guide one to Applicant's particular thickness. This is in part because according to Applicant's Claim 2, the conductive contact layer is provided regardless of the anti-corrosive property. The function of the conductive contact layer is to secure a current path between the bipolarplate substrate and the gas diffusion layer. The conductive contact layer only serves the function of conductivity.

In Applicant's Claim 2, it is clear that the bipolarplate substrate serves the anti-corrosive function. Anti-corrosion resistance, as a parameter, has no application to Applicant's conductive contact layer. Thus, it is not a parameter which one would rely on to determine thickness. If one did so rely they could not arrive at Applicant's thickness.

In determining the appropriate thickness, Applicant discovered that maintaining a thickness above .0005 μm has advantages. These advantages are not understood in the prior art. If the thickness goes below .0005 μm natural oxidation is caused. As a result, the bandgap is increased to be greater than .6eV and the contact resistance s increased. Thus, the composite material, including Applicant's conductive contact layer, could not be used for a separator for a fuel cell. The cited references neither disclose nor suggest the above technical features, problem, nor means for solving the problem. As nothing in the prior art suggests, the appropriate parameters and offers appropriate guidance as to how to provide a conductive contact layer with appropriate thickness. Applicant's Claim 2 is allowable.

The remaining claims, all of which depend from Claim 2, are allowable for the reasons set forth with respect to Claim 2.

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Respectfully Submitted,

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